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(71) 出願人 593102688

テクニカルグラウト株式会社  
埼玉県蓮田市椿山1丁目13番5号

(72) 発明者 波多野 勝治

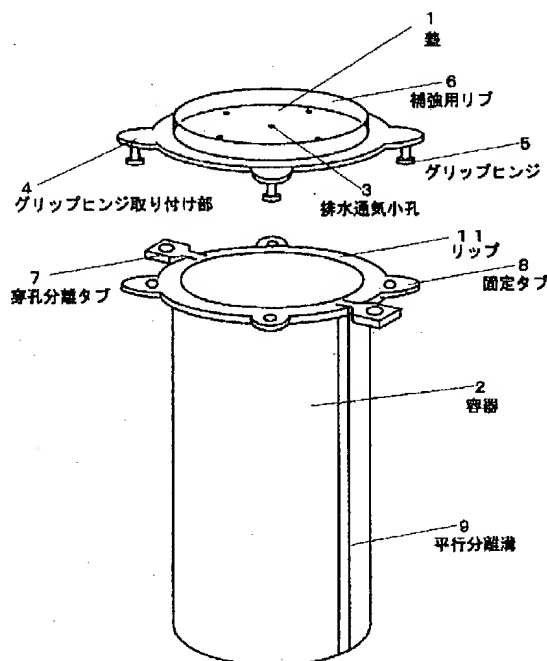
埼玉県蓮田市椿山1丁目13番地5号

(54) 【発明の名称】 コンクリート圧縮試験用供試体採取容器

(57) 【要約】

【課題】 特殊コンクリート試験用供試体採取において、採取容器の衝撃による変形を防ぎ、軽量化、利便性の向上を図る。

【解決手段】 上面に開口部を有する閉塞円筒状の部材であって、蓋部及び底部に補強用リブ6を設け、円筒部外面鉛直方向に供試体分離を容易とする平行分離溝9と対の穿孔分離タブ7を複数配し、拘束用蓋1に排水通気小孔3を穿設、複数のグリップヒンジ5と固定タブ8をもって蓋と容器を接合する。



## 【特許請求の範囲】

【請求項1】 上面に開口部を有する閉塞円筒状の部材であって、蓋部及び底部に補強用リブ(6, 10)を設け、円筒部外面鉛直方向に供試体分離を容易とする平行分離溝(9)と対の穿孔分離タブ(7)を複数配し、拘束用蓋(1)に排水通気小孔(3)を穿設、複数のグリップヒンジ(5)と固定タブ(8)をもって蓋と容器を接合するコンクリート圧縮試験用供試体採取容器。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、コンクリートの強度試験用供試体採取に使用する容器及び蓋の構造に関する。

## 【0002】

【従来の技術】従来は、JIS規格に定められている金属製採取型枠、ブリキ等の金属板を有底円筒状に加工した容器、及び特開平9-145570号に記されるプラスチック容器及び類似容器により供試体の採取が行われていた。

## 【0003】

【発明が解決しようとする課題】金属製採取型枠では、モルタル硬化時の膨張を拘束するため高密封状態にあるので、硬化時に発生するブリージング水が供試体上部に留保し、硬化後発泡状弱強度層を形成しやすく、さらに夏期冬期における温度差の著しいときには容器自体の熱によりモルタルの硬化に悪影響を及ぼし、ひいては供試体強度の低下につながる恐れがある。又、重く運搬に労力を必要とし、摩耗、錆の発生も大きな問題となり、使用後は清掃、メンテナンスが不可欠であり、さらに煩雑な管理が行われた場合個々の部品の取り違いによる不整合も発生し、ねじ止めの各部品は供試体取り出しのための分解にも時間がかかるなど、維持に多大な労力を要する。

【0004】ブリキ等の肉薄の金属板を加工した容器では、使い捨てのためメンテナンスが要らず過重量による取り回しの悪さは無いが、肉薄で変形しやすいため、打ち込んだモルタルを容器内に均一に行き渡らせるために木槌等で叩く事ができず、容器の落下による陥没変形にも気を配らなければならない。

【0005】特開平9-145570のプラスチック製容器及び類似容器は、使い捨てで衝撃にも強く、供試体分離も容易だが、蓋構造を持たないため養生に注意を怠ると、開口部からのモルタルこぼれ出し、モルタルの変形硬化等を起こし、なおかつ該構造では無収縮モルタルの供試体作成しか対応できず大きく利便性を欠く。

【0006】本発明は、膨張及び無収縮、両供試体採取可能で蓋構造によりこぼれ出しがなく、ブリージング水及び容器自体の熱が供試体に影響を及ぼさず、使い捨てで軽く、分解が簡易で錆の発生のない維持管理の非常に容易な供試体採取容器を提供することを目的としてい

る。

## 【0007】

【課題を解決するための手段】上面に開口部を有する閉塞円筒状の部材であって、蓋部及び底部に補強用リブ6, 10を設け、円筒部外面鉛直方向に供試体分離を容易とする平行分離溝9と対の分離タブ7を複数配し、拘束用蓋1に排水通気小孔3を穿設、複数のグリップヒンジ5と穿孔固定タブ8をもって蓋1と容器2を接合し、無収縮、膨張両モルタルの供試体を採取可能にしたものである。

## 【0008】

【発明の実施の形態】以下、本発明に係わるコンクリート圧縮試験用供試体採取容器の一実施例を図に従って説明する。図1は合成樹脂によって作成された蓋及び容器の斜視図であり、金型射出成形による。蓋1及び容器2は肉厚1.5mm、蓋1下面は平面構成とし、上面に外周部直径49.8mm、1.5mm厚の補強用リブ6、補強用リブ6内径内に1.0mmの排水通気小孔3を円中心に1つ、それより垂直水平方向及び対角に各々2つ合計5つ穿設、容器2内径50mm、容器2内高100mm、容器開口部に3.5mmのリップ11を設け、そこに固定タブ8を配する。グリップヒンジ5及び固定タブ8は、蓋1外周部及び容器2開口部外周の等対角に各々4個ずつ配し、平行分離溝9内部の肉厚は0.3mm、幅10mm、上部の円周部には7mmの穴を穿った穿孔分離タブ7が配される。図3は容器底面図で1.5mm厚の補強用リブ10を48mmと25mmの直径で2本、それを4本のリブで接続した。蓋1に設けられているグリップヒンジ5と、容器2の固定タブ8により蓋1と容器2を接合する。運搬時には補強用リブ6が留め具の役割を果し、蓋1を裏返して容器2と合わせ、接合することなく持ち歩く事を可能とする。よって、補強用リブ6の外周直径は容器内径50mmより僅かに短いものとし、固定できる程度のものとする。

【0009】供試体採取時は、容器2にモルタルを注ぎ入れ、その後グリップヒンジ5と固定タブ8をかみ合わせ、蓋1と容器2を接合し、地面に対して平行で堅牢な場所で安置する。なお、無収縮モルタル、膨張モルタル共に同様の手順で採取される。(供試体採取方法に関しては、無収縮モルタルがJIS A 1180「コンクリートの圧縮強度試験方法」、膨張モルタルが土木学会規準「プレバックドコンクリートの注入モルタルの圧縮強度試験方法」、に準ずる。)

【0010】蓋1にはブリージング水排出のための排水通気小孔3を穿設し、供試体上部にブリージング水によりできる発泡状弱強度層形成を阻止する。尚、排水通気小孔8はモルタルが流出しない適当な大きさとする。蓋1は引き抜け防止グリップヒンジ5を、容器2の固定タブ8と結合する事により、モルタル硬化時の膨張力に耐え、蓋1の補強用リブ6及び図3容器下面の水平面維持

用強化リブ10を設けることで、円柱型供試体の上下面の平行を維持する。この二つの機構により無収縮、膨張両モルタルに対し使用可能で、かつ弱強度層発生を防ぐ。

【0011】硬化済みの供試体は圧縮試験にかけるために採取容器から分離されるが、この際、蓋1を上容器を支え、穿孔分離タブ7の穴部に金属棒等を差し込み、容器外周面に接触させる。テコの原理を利用し支点を棒と容器の接触面に置いて、穿孔分離タブ7を外側に引き剥がす。剥がれた分離タブ7を掴み下方向に引き剥がす。蓋1を外した後容器を押し開くようにして分離する。平行分離溝9は容器2下面から穿孔分離タブ7まで垂直に設け、平行分離溝9を1組と分離タブ7を1つの構造で簡易分離を構成するが、円柱の直径方向に向かい合い、もう一つ同じ構造を設けることが最良の分離性を実現する構成と考えられる。(硬化、研磨に関しては、無収縮モルタルがJIS A 1180「コンクリートの圧縮強度試験方法」、膨張モルタルが土木学会規準「プレバッドコンクリートの注入モルタルの圧縮強度試験方法」、に準ずる。)

【0010】

【発明の効果】以上述べたように、本発明に係わるコンクリート圧縮試験用採取容器は、蓋1に排水通気口3を設けることにより従来の採取容器の問題点を解決し、グリップヒンジのついた蓋1を一つの構成とした事、平行分離溝9及び穿孔分離タブ7を設ける事、合成樹脂によ

る金型射出成形による大量生産による使い捨て構造でコストの軽減と運搬及び管理、使用時の利便性の向上を図り、無収縮及び膨張両モルタルの供試体採取を可能にする。

【図面の簡単な説明】

【図1】本発明に係わる、合成樹脂製採取容器の斜視図である。

【図2】蓋上面の平面図である。

【図3】蓋下面の平面図である。

【図4】容器上面の平面図である。

【図5】容器下面の平面図である。

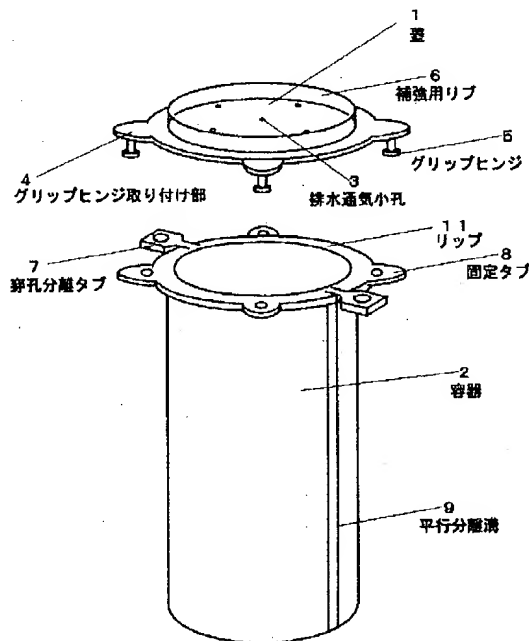
【図6】グリップヒンジの斜視図である。

【図7】分離用穿孔タブの上面図である。

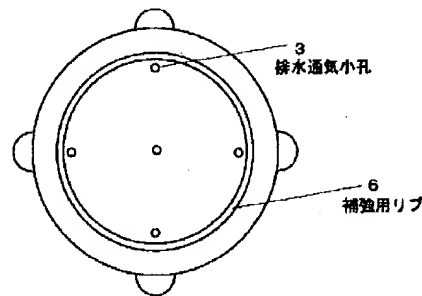
【符号の説明】

- 1 蓋
- 2 容器
- 3 排水通気小孔
- 4 グリップヒンジ取り付け部
- 5 グリップヒンジ
- 6 補強用リブ
- 7 穿孔分離タブ
- 8 固定タブ
- 9 平行分離溝
- 10 補強用リブ
- 11 リップ

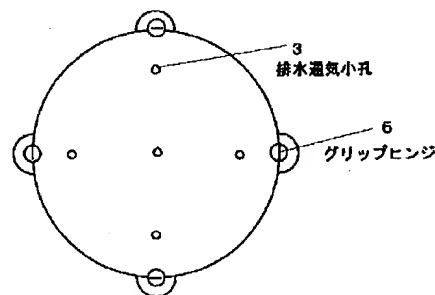
【図1】



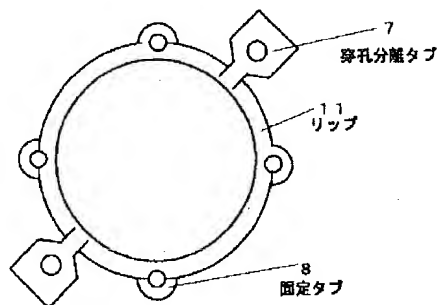
【図2】



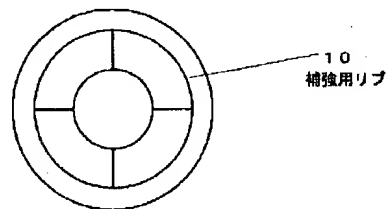
【図3】



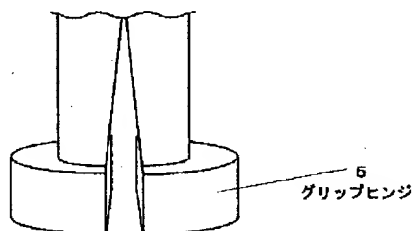
【図4】



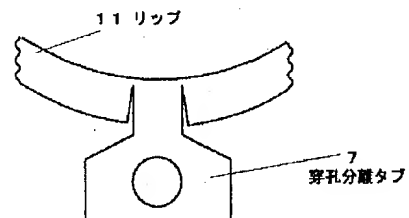
【図5】



【図6】



【図7】



**PAT-NO:** JP02000258316A

**DOCUMENT-IDENTIFIER:** JP 2000258316 A

**TITLE:** COLLECTING CONTAINER FOR TEST PIECE FOR  
CONCRETE  
COMPRESSION TEST

**PUBN-DATE:** September 22, 2000

**INVENTOR-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
HATANO, KATSUJI	N/A

**ASSIGNEE-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
TECHNICAL GROUT KK	N/A

**APPL-NO:** JP11099198

**APPL-DATE:** March 3, 1999

**INT-CL (IPC):** G01N001/28, B28B001/00 , G01N001/10

**ABSTRACT:**

**PROBLEM TO BE SOLVED:** To collect a test piece as  
uncompressed mortar and a  
test piece as swollen mortar by a method wherein a lid in which

a small  
drainage and ventilation hole is bored and formed, and a  
container in which  
parallel separation grooves and separation tabs are arranged are  
bonded by grip  
hinges and bored fixation tabs.

**SOLUTION:** A lid 1 and a container 2 are formed by the mold  
injection molding  
operation of a synthetic resin. A rib 6 for reinforcement is  
installed on the  
surface of the lid 1. Small drainage and ventilation holes 3 are  
bored and  
formed in the lid 1. Grip hinges 5 are arranged and installed in  
the outer  
circumferential part of the lid 1. Fixation tabs 8 are arranged and  
installed  
in the outer circumference of the opening part of the container 2.  
In  
addition, parallel separation grooves 9 and bored separation tabs  
7 by which a  
test piece is separated easily are arranged on the outer face of  
the container  
2. Then, when the test piece is collected, mortar is poured into  
the container  
2, the grip hinges 5 and the fixation tabs 8 are engaged, and the  
lid 1 and the  
container 2 are bonded so as to be installed in a place which is  
parallel to  
the ground and which is solid. At this time, the small drainage  
and  
ventilation holes 3 for freezing-water discharge prevent the  
formation of a  
foamed weak-strength layer which is formed in the upper part of  
the test piece.  
In addition, the lid 1 can endure a swelling force when the mortar

**is hardened**

**because the grip hinges 5 are bonded to the fixation tabs 8.**

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the structure of the container used for the specimen extraction for strength tests of concrete, and a lid.

[0002]

[Description of the Prior Art] Conventionally, extraction of a specimen was performed by the container into which metal plates set to JIS, such as a metal extraction mold and a tin plate, were processed in the shape of a closed-end cylinder, the plastic envelope described at JP,9-145570,A, and the similar container.

[0003]

[Problem(s) to be Solved by the Invention] In a metal extraction mold, since it is in a high sealing condition in order to restrain the expansion at the time of mortar hardening, there is a possibility of the bleeding water generated at the time of hardening reserving in the specimen upper part, and being easy to form a layer of hardening backward foaming weak layer on the strength, having a bad influence on hardening of mortar with the heat of the container itself when the temperature gradient in summer winter is still more remarkable, as a result leading to the fall of specimen reinforcement. Moreover, wear and generating of rust also pose a big problem, an effort is heavily needed for conveyance, after use has cleaning and an indispensable maintenance, when still more complicated management is performed, the mismatch of each components depended for mistaking is also generated, and maintenance -- each part article of a screw-thread stop requires time amount also for the decomposition for specimen ejection -- takes a great effort.

[0004] With the container into which metal plates of closing in, such as a tin plate, were processed, although a maintenance is not needed for throwing away but there is no badness of management by the too heavy amount, in order to spread in a container the mortar driven in since it was easy to deform by closing in at homogeneity, a mallet etc. cannot strike, but the cave-in deformation by fall of a container must also be taken care of.

[0005] the container made from plastics and similar container of JP,9-145570,A are strong also against an impact at throwing away, and specimen separation is also easy for them -- since it does not have lid structure, if cautions are but neglected to a regimen -- mortar \*\*\*\*\* from opening -- carrying out -- deformation hardening of mortar etc. -- a lifting -- in addition -- and with this structure, only specimen creation of shrinkage-compensating mortar can respond, but convenience is lacked greatly.

[0006] Expansion and no contracting, and both specimen extraction are possible for this invention, and it falls according to lid structure, and it comes out and is poor and the heat of bleeding water and the container itself does not affect a specimen, but it is light at throwing away, decomposition is simple, and it aims at offering the very easy specimen extraction container of a maintenance without generating of rust.

[0007]

[Means for Solving the Problem] Are the member of the shape of a lock out cylinder which has a opening on the upper surface, and stiffening ribs 6 and 10 are formed in a covering device and a pars basilaris ossis occipitalis. Two or more parallel separation slots 9 which make specimen separation easy, and a pair of separation tabs 7 are arranged in the direction of a body external surface vertical. With drilling, and two or more grip hinges 5 and punch fixed tabs 8, it joins to the lid 1 for constraint, and the wastewater aeration stoma 3 is made at it extractable [ a specimen of no contracting and expansion both mortar ] for a lid 1 and a container 2.

[0008]

[Embodiment of the Invention] Hereafter, one example of the specimen extraction container for concrete compression tests concerning this invention is explained according to drawing. Drawing 1 is the perspective diagram of the lid created with synthetic resin, and a container, and is based on metal mold injection molding. A lid 1 and a container 2 consider the thickness of 1.5mm, and lid 1 inferior surface of tongue as a plane configuration. On the upper surface The periphery section diameter of 49.8mm, Focusing on a circle, the 1.0mm



wastewater aeration stoma 3 in the stiffening rib 6 of 1.5mm thickness, and stiffening rib 6 bore One From it, two a total of five drilling, container 2 bore of 50mm, and the high one of 100mm in a container 2 are formed in a perpendicular horizontal direction and a vertical angle, the 3.5mm lip 11 is respectively formed in a container opening, and a fixed tab 8 is arranged there. The grip hinge 5 and four fixed tabs 8 are respectively arranged on each vertical angles, such as the lid 1 periphery section and a container 2 opening periphery, and the punch separation tab 7 with which the thickness of the parallel separation slot 9 interior dug the 7mm hole in 0.3mm, width of face of 10mm, and the upside circumference section is arranged. In the container bottom plan view, drawing 3 connected the stiffening rib 10 of 1.5mm thickness for the diameter of 48mm and 25mm, and connected 2 and it with four ribs. A lid 1 and a container 2 are joined to the grip hinge 5 formed in the lid 1 with the fixed tab 8 of a container 2. It makes it possible to carry around without a stiffening rib's 6 playing the role of a fastener at the time of conveyance, turning a lid 1 over, and joining together with a container 2. Therefore, make the periphery diameter of a stiffening rib 6 slightly shorter than the container bore of 50mm, and let it be the thing of a fixable degree.

[0009] A container 2 is filled with mortar at the time of specimen extraction, it engages the grip hinge 5 and a fixed tab 8 after that, joins a container 2 to a lid 1, and installs it to the ground in an parallel and strong location. In addition, it is extracted in the procedure in which shrinkage-compensating mortar and expansion mortar are the same. (About the specimen extraction method, compressive strength test-method" of JIS A 1180"concrete and expansion mortar apply [ shrinkage-compensating mortar ] to the Japan Society of Civil Engineers standard "the compressive strength test method of the grouting mortar of preplaced aggregate concrete".)

[0010] The wastewater aeration stoma 3 for bleeding water discharge is drilled in a lid 1, and the letter of foaming weak stratification on the strength made with bleeding water in the specimen upper part is prevented. In addition, the wastewater aeration stoma 8 is taken as the suitable magnitude into which mortar does not flow. It can draw out, and a lid 1 bears the prevention grip hinge 5 by combining with the fixed tab 8 of a container 2 at the expansion force at the time of mortar hardening, it is forming the stiffening rib 6 of a lid 1, and the strengthening rib 10 for horizontal plane maintenance under the drawing 3 container, and maintains parallel of the vertical side of a cylinder mold specimen. According to these two devices, to no contracting and expansion both mortar, it is usable and weak on-the-strength layer generating is prevented.

[0011] Although it dissociates from an extraction container in order to apply a specimen [ finishing / hardening ] to a compression test, a container is supported for a lid 1 upwards, a metal rod etc. is inserted in the hole of the punch separation tab 7, and a container peripheral face is made to contact in this case. The principle of TEK0 is used, the supporting point is put on the contact surface of a rod and a container, and the punch separation tab 7 is torn off outside. The separation tab which separated is held and it tears off downward. After removing a lid 1, it dissociates, as a container is pushed open. Although container 2 inferior surface of tongue to the punch separation tab 7 establishes the parallel separation slot 9 in a perpendicular and simple separation is constituted [ the parallel separation slot 9 ] for 1 set and the separation tab 7 from one structure, it faces each other in the cylindrical diameter direction, and it is considered to be the configuration which realizes the best separability to establish the structure with one [ same ] more. (About hardening and polishing, compressive strength test-method" of JIS A 1180"concrete and expansion mortar apply [ shrinkage-compensating mortar ] to the Japan Society of Civil Engineers standard "the compressive strength test method of the grouting mortar of preplaced aggregate concrete".)

[0010]

[Effect of the Invention] As stated above, the extraction container for concrete compression tests concerning this invention The trouble of the conventional extraction container is solved by forming the wastewater bleeder 3 in a lid 1. Having covered one configuration with the lid 1 which the grip hinge attached, the parallel separation slot 9, and the punch separation tab 7 are formed, Improvement in the convenience at the time of mitigation of cost, conveyance and management, and use is aimed at with the disposable structure by mass production method by metal mold injection molding by synthetic resin, and specimen extraction of no contracting and expansion both mortar is enabled.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective diagram of the extraction container made of synthetic resin concerning this invention.

[Drawing 2] It is a plan on the upper surface of a lid.

[Drawing 3] It is a plan under a lid.

[Drawing 4] It is a plan on the upper surface of a container.

[Drawing 5] It is a plan under a container.

[Drawing 6] It is the perspective diagram of a grip hinge.

[Drawing 7] It is the plan of the punch tab for separation.

[Description of Notations]

1 Lid

2 Container

3 Wastewater Aeration Stoma

4 Grip Hinge Installation Section

5 Grip Hinge

6 Stiffening Rib

7 Punch Separation Tab

8 Fixed Tab

9 Parallel Separation Slot

10 Stiffening Rib

11 Lip

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[Translation done.]